

# The ultimate guide to swapping a Version 8/9 STi cluster in to your 2005-2007 WRX

## Disclaimers:

1. I take no responsibility if you damage your car, stab yourself with a screwdriver, your wife leaves you, etc as a result of performing these modifications. Take the time to read and understand this guide before attempting anything.

If anything in this guide doesn't make sense, don't attempt the mod. I've seen too many people damage electrical equipment because they didn't fully understand what they were doing before they did it. This isn't exactly rocket science, but I will assume a moderate understanding of electronics.

If something you read in this guide doesn't make sense, or you think it's wrong, CHECK IT AGAINST THE SCHEMATICS BEFORE PROCEEDING.

2. You WILL void your warranty (not that you have much left if you're driving a 2005-2007 Impreza anyway) and I mean ALL of your warranty. As the cluster connects directly to the ECU, which connects to pretty much everything else in the car, Subaru aren't going to be interested in coming to the party once you've done this.

3. It is illegal in Australia to misrepresent the correct mileage of your car. So if you want to keep everything legit, make sure you have your odometer calibrated to match the original mileage, WITH DOCUMENTATION to prove it. There are services in Australia which can offer this. A quick Google search in your local area should be all that's required.

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## YOUR OPTIONS:

As the wiring does not match exactly between the STi and corresponding year model WRX, you are going to have to make some modifications.

**OPTION 1: Modify the wiring on the car to suit the replacement cluster.** EASIEST OPTION, BUT YOU HAVE TO MODIFY YOUR CAR WIRING

**OPTION 2: Buy the parts from a wrecker to build an adaptor harness** (you'll need the cluster side connectors from a WRX the same year as yours and the harness from an STi the same year as the cluster you are fitting. MOST DIFFICULT PERHAPS, BUT EASY TO REVERT BACK TO STOCK. MUCH HIGHER CHANCE OF MAKING A MISTAKE AS THERE ARE A LOT OF WIRES!

**OPTION 3: Modify the cluster so it plugs straight in.** (if you're swapping in a version 9 STi cluster, you'll need a replacement i12 connector, or de-solder it off your stock WRX cluster. Or, send the cluster to Cory at Interior Flair and have him modify it to be plug and play compatible with your car.

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## What is the difference between the STi and WRX clusters in terms of wiring? An overview.

Let's begin with the obvious, DCCD. The WRX does not have DCCD, STi models from 2004 onwards do, so straight away that means some pins on the STi cluster are not going to be applicable to the WRX. However this does not affect operation of the cluster. It does mean however that the "DCCD" light will remain on at all times. This light is controlled by the cluster itself, so you can't just ground it out like you can with other warning lights such as the 'Diff. Temp' light. If this bothers you, you can pull the plastic cover off the front of the cluster and put some black tape over the light. Or if you're really anal about it, pull the gauge face off and put the tape behind the gauge so it can't be seen. **DO NOT REMOVE THE GLOBE** as it part of a circuit and will break other things.

Take a closer look at the wiring schematics of the STi and WRX models and you'll see that the STi cluster's internal wiring is actually very different from the WRX. In fact, a lot of the illumination wiring throughout the whole car is different. Thankfully, a lot of the wiring is cross compatible so we don't need to worry about it too much. The STi uses an illumination circuit which runs throughout the car and is controlled by a single potentiometer dimmer on the dash. This makes wiring very straight forward. The WRX however uses the Body Integrated Module (BIM) to control illumination. The dimmer control dial on the dash runs through the BIM and then out to the various components in the car, including the cluster, HVAC controls and switches. This makes no difference to the wiring on the HVAC and switches, but does mean slightly different wiring on the cluster. The reason for this difference in wiring on the STi cluster is that it needs to illuminate all the time for the dials to be visible. Unlike the WRX cluster which only illuminates when the headlights are on.

It is important to keep this in mind when modifying any illumination wiring in the WRX as you run the risk of damaging the BIM if you short something out.

So what does this mean? When swapping in an STi cluster, dimming needs to be handled separately. The cluster will not dim with the dial on the dash like it does with the stock cluster. There are a few solutions to this. If you are using a version 8 STi cluster, there is a built-in illumination control which you can use to dim the lights at night. However on the version 9 STi cluster, you will need to build a simple dimmer circuit if you wish to be able to dim the cluster at night. This can be wired in using the existing potentiometer, but it means that other components in the car will no longer dim. You can't do both at once using the stock wiring as voltage will be constantly supplied to the illumination wire from the BIM. For this reason, most people chose to fit a separate potentiometer to dim the cluster on its own when fitting a Version 9 STi cluster. We'll cover wiring a little later on.

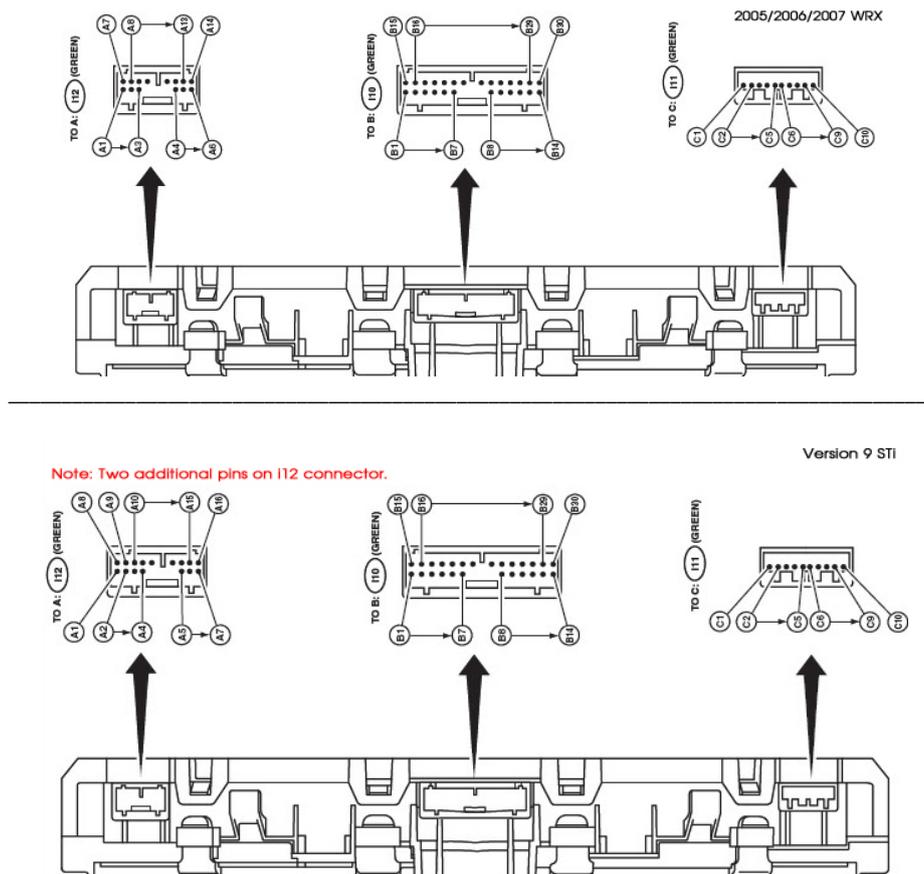
**PIN OUTS:**

The cluster connects to the car using three separate plugs, labelled i10, i11 and i12 in the schematics. Although the plugs look identical between the WRX and STi (with the exception of the version 9 STi cluster) Subaru made this mod a little tricky as the pin configuration on the WRX models does not match that of the corresponding STi exactly. Having said that, your best bet is to still go with the corresponding year when purchasing a replacement cluster. From 2005 onwards (Version 9), Subaru fitted an entirely different connector above the fuel and temp gauges, so further modification is required to fit a version 9 STi cluster to a WRX.

As there are so many different combinations of wiring in so many different cars, the easiest way to tackle this is to list all the various combinations, along with the required modifications to make the modification work.

**Version 9 STi cluster into MY05/MY06/MY07 WRX:**

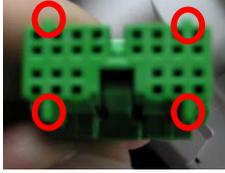
**Notes:** Version 9 introduces a newly designed i12 connector, adding two additional pins. This changes the pin numbers on the schematics, but the majority of pins still line up correctly. The advantage of fitting a Version 9 STi cluster to an MY05/06/07 WRX is that the ABS indicator light circuit polarity is correct, so there is no need to wire up a polarity flip circuit. The disadvantage is that as the i12 plug design has changed, some modification needs to be made to the connector on the car to make it fit.



As you can see, pin numbers from A1 to A7 are offset by 1 position due to the additional pins. So A2 on the STi cluster is the same as A1 on the WRX cluster. On the second row, they are offset by 2, so A9 on the STi cluster is the same as A7 on the WRX cluster. Don't get confused and think you need to move all the pins around so the numbers match!

## REQUIRED MODIFICATIONS:

- If modifying the wiring on the car, **Trim the plastic prongs off the bottom of the i12 connector on the car side so that the connector can be slid in to the i12 socket on the cluster, leaving two pins on the cluster side exposed.** These pins are not required. If you've chosen to modify the cluster, you'll need to de-solder the original plug and replace it with the plug from your stock cluster. Remember, there will be 2 unused pins. A1 and A8 (as listed on the STi schematic), so be sure to orient the connector correctly on the PCB.



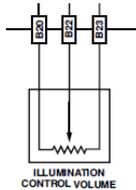
You will need to shave these prongs off the connector for it to fit. Don't worry, the clip still works so it will be secure!

-**Cut the C9 wire located on the right connector (i11).** On the STi, this wire is connected to the buzzer and is normally ground. On the WRX, this wire is +12V and is part of the dimmer circuit. Failure to cut this wire will result in the STi cluster making a loud buzzing noise.

-**Move pin in position B28 to position B16 located on the centre connector (i10).** On the WRX, position B16 is used for the cruise control indicator light. On the STi, position B28 is used. Failure to move this pin will cause the cruise light to not illuminate when cruise control is active.

-**Ground pin B4 located on the centre connector (i10).** you can do this by simply running a wire from this position on the cluster to the chassis of the car, or linking it to pin C6 on the i11 connector (ground). This grounds out the 'Rear Diff Temp' light. Failure to do this modification results in the 'Rear Diff Temp' light staying on all the time.

- **Connect a 50k OHM Linear Taper Potentiometer between pins b20, b22 and b23 on connector i10 on the cluster as shown.**



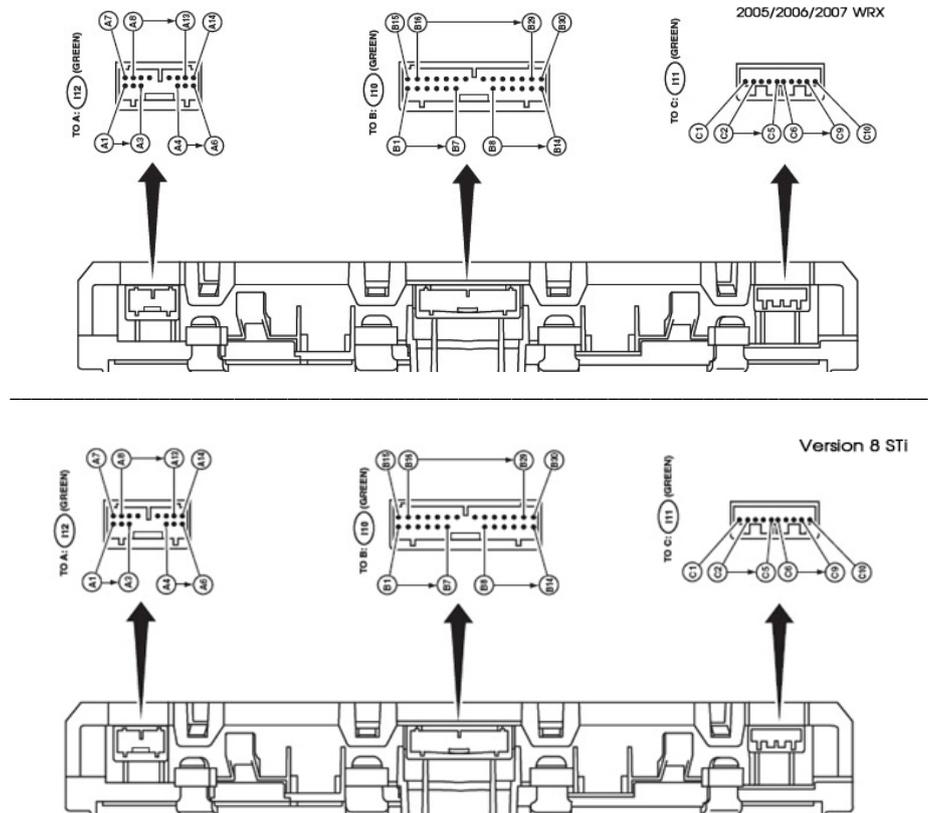
As there are no wires in this location on the WRX wiring, it's best to open up the STi cluster and run some wires out from the inside to connect to the potentiometer. **With the headlights turned on, lower the brightness of the cluster until it makes a sudden drop in light (this is the night setting). When you turn the headlights off the cluster goes back to the brightest setting.**

## RESULTS:

- \*All indicator lights work correctly, including Check Engine, ABS, Air Bag.
- \*Speedometer reads approximately 5-10km/h faster when compared to the stock WRX cluster. This remains stable through to 120km/h
- \*Fuel gauge doesn't quite read full when the tank is full (about 7/8ths), but is actually more accurate than the stock WRX cluster as the fuel level drops.
- \*DCCD indicator lights remains on.
- \* Outside Air Temperature (OAT) reads correctly.

### Version 8 STi cluster into MY05/MY06/MY07 WRX:

**Notes:** ABS indicator light circuit polarity is reversed on the Version 8 STi and 2003, 2004 WRX models, so if you want the ABS light to work correctly when fitting a Version 8 STi cluster into an MY05/MY06/MY07 WRX, you're going to need to use a relay to flip the polarity. The advantage of using a Version 8 STi cluster over a Version 9 is that as the i12 plug remains the same between the STi and WRX, and the cluster itself offers an illumination adjustment, meaning no need to build a dimmer circuit.



As you can see, connector and pin layout is identical between both models, despite the wiring being slightly different.

### REQUIRED MODIFICATIONS:

-Move pin in position B28 to position B16 located on the centre connector (i10). On the WRX, position B16 is used for the cruise control indicator light. On the STi, position B28 is used. Failure to move this pin will cause the cruise light to not illuminate when cruise control is active.

-Cut the ABS wire (B3), hook the side coming from the cluster to one of the switched terminals on a normally closed relay, and the part going to the ABS unit up to one terminal on the coil side. Then hook other switched terminal to C6 (ground) on the i11 connector, and the other coil terminal to C7 (Ignition +12V) on the i11 connector.

-Ground pin B4 located on the centre connector (i10). you can do this by simply running a wire from this position on the cluster to the chassis of the car, or linking it to pin C6 on the i11 connector (ground). This grounds out the 'Rear Diff Temp' light. Failure to do this modification results in the 'Rear Diff Temp' light staying on all the time.

### RESULTS:

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\*DCCD indicator lights remains on.

\* Outside Air Temperature (OAT) reads correctly.

\*People have reported issues with the I/C Water Spray indicator light staying on. However I can't see any reason for this to be the case from looking at the schematic. If it does occur, ground out pin B5 on connector i10 to pin C6 on connector i11.